

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION
DRINKING WATER PROGRAM
Policy/Procedure 1996-3
Effective Date - April 26, 1996**

SUBJECT: Drawdown Seals in Water Wells

Authority:

R 325.1632, Rule 132(4) and R 325.1657, Rule 157(1) of the Groundwater Quality Control Rules adopted pursuant to Part 127, Act 368, P.A. 1978, (Michigan Public Health Code) as amended.

Background:

Drawdown seals are mechanical devices occasionally installed in water wells. They seal between the submersible pump drop pipe and the well casing and are designed to control lowering of the static water level within the well casing during pumping. When the pump is running, a low pressure or vacuum is created below the seal. They are also marketed as pollution barriers; to eliminate aeration and control iron precipitation; to increase well efficiency and yield; to protect submersible pumps from running dry; and to center the pump.

R 325.1632(4) of the Groundwater Quality Control Rules states that the top 25 feet of a well casing shall not be used as a suction line unless the well casing is protected by a standard weight or heavier outer casing. R 325.1657 requires that casing vents be provided. By creating a vacuum in the casing, the use of drawdown seals will result in violation of R 325.1632(4) and R 325.1657 in some cases.

The following policy and recommendations address concerns of the Ground Water Advisory Committee and Michigan Department of Environmental Quality (MDEQ), Drinking Water & Radiological Protection Division staff.

General Policy:

1. Drawdown seals are generally unnecessary in water wells where an adequate aquifer exists and proper well installation practices have been used.
2. Drawdown seals should be installed to address specific known conditions only. Well drilling contractors and pump installers should not install them on a routine basis.
3. Drawdown seals should not be installed on new wells to compensate for:
 - (1) inadequate well depth,
 - (2) insufficient aquifer penetration,
 - (3) insufficient water submergence due to drilling rig depth limitations, or
 - (4) ineffective well screen development practices.

Where these conditions exist, appropriate steps should be taken to correct the cause of the problem.

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4. Where a drawdown seal is deemed necessary and appropriate, it should be installed directly above the submersible pump, and shall not be within the upper 25 feet of well casing (except as noted below).
5. Single or multiple drawdown seals may be installed within 25 feet of the ground surface, if used to stop or control the discharge within a flowing artesian well.
6. Bentonite grout or other sealing materials should not be placed on top of a drawdown seal. These materials can make submersible pump removal difficult or impossible. Wells have become unrepairable because of bentonite being placed above drawdown seals.
7. The installation of a drawdown seal must be noted on the Water Well and Pump Record and the reason for its use should be stated.

Policy Support:

The Ground Water Advisory Committee supports this policy. For further information, please contact the Michigan Department of Environmental Quality, Drinking Water and Radiological Protection Division at (517) 335-9216.

Approved:

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Drinking Water & Radiological Protection Division

Date